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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,369	10/09/2003	Taiichi Miya	MINB-02011/A-3049	6391

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David G. Posz
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1200 Seventeenth Street, N.W.
Washington, DC 20036

EXAMINER

ROMAN, LUIS ENRIQUE

ART UNIT	PAPER NUMBER
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2836

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/681,369	Applicant(s) MIYA ET AL.	
	Examiner Luis Roman	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION


In view of the Appeal Brief filed on 11/20/06, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:



BRIAN SIRCUS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 7-8 & 15-16 are rejected under 35 U.S.C. §103(a) as being unpatentable over Dulin et al. (US 6118201) in view of Murakami et al. (JP 05021234 A) and Berger (US 5025201).

Regarding claim 1 Dulin et al. discloses a rotary transformer (Abstract & Fig. 1 element 20) type resolver having an inner core on which a rotary transformer output winding (Col. 1 lines 53-56 & Fig. 1 elements 52, 54) is wound and a resolver rotor on which resolver excitation windings are wound, a crossover lead (Col. 3 lines 27-32 & Fig. 1 element 70) that connects the rotary transformer output winding and the resolver excitation windings.

Dulin et al. does not disclose:

- a) a disconnect protection structure comprising an insulating tube apparatus that covers the crossover lead and that has outermost ends secured to the crossover lead;
- b) a thermal expansion coefficient absorption means for absorbing a difference between thermal expansion coefficients of the crossover lead and the insulating tube apparatus to thereby inhibit disconnection of the crossover lead from the rotary transformer output winding and the resolver excitation windings.

Murakami et al. teaches a rotary transformer which keeps bonding strength between tube where through a lead passes with an end secured to the lead (Abstract & Fig. 1 element 4 & Fig. 5 element 25 <The examiner notes that the terms outermost/innermost are relative, since they need a reference point to be perfectly

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defined, if no point of reference is provided they are interchangeable or in other words they are undefined>).

Berger teaches a thermal expansion coefficient absorption means for absorbing a difference between thermal expansion coefficients of a tube covering a lead in a resolver excitation windings (Col. 1 lines 40-45).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Dulin et al. device with the teachings of Murakami et al. to provide a sleeve to cover the crossover lead to ensure insulation and mechanic protection for the crossover lead.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Dulin et al. in view of Murakami et al. with the teachings of Berger to protect the crossover lead by covering it with an adequate thermal expansion coefficient material to provide the crossover lead with insulation and protection from contaminants and with the proper coefficient of thermal expansion to prevent disconnection of the crossover lead (The examiner notes that Berger teaches a coefficient of thermal expansion on hubs/sleeves to protect a mechanical part of the device, therefore it would have been obvious to protect a more delicate part of the device such as an electrical conductor or crossover <Murakami et al. the protection of delicate electrical leads>. Moreover, the discussion of a coefficient of thermal expansion in Berger demonstrates the concept of elements variation in size with the temperature whether they are mechanical or electrical components will occur. This is a basic thermodynamic concept).

Regarding claim 2 Murakami et al. further teaches wherein the insulating tube is separated into a plurality of insulating tube units (Fig. 1 elements 4), and wherein only one end of each insulating tube is secured to the crossover lead (Fig. 3 element 15 <The examiner notes that the terms leftmost/rightmost & outer left/outer right are relative, since they need a reference point to be perfectly defined, if no point of reference is provided they are interchangeable or in other words they are meaningless>).

Regarding claim 3 Murakami et al. further teaches wherein the thermal expansion coefficient absorption means comprises adjacent ends of insulating tube units and a predetermined gap defined between the adjacent ends of the plurality of insulating tube units (Fig. 1 elements 4 show the insulating tubes with a defined length which suggests a gap between two different insulating tubes of a plurality), the plurality of insulating tube units thereby being capable of expanding or contracting in response to temperature changes (Col. 1 lines 40-45).

Regarding claim 7 Dulin et al. in view of Murakami et al. and Berger discloses a disconnect protection structure for housing (Dulin et al.) a rotary transformer (Abstract & Fig. 1 element 20) type resolver crossover lead (Col. 3 lines 27-32 & Fig. 1 element 70), comprising: (Murakami et al.) an insulating tube apparatus that covers a lead (Fig. 1 elements 4) and that one end of the insulated tube is secured to the lead (Fig. 5 element 25), wherein the insulating tube apparatus is divided into a plurality of insulating tube units (Fig. 1 elements 4) to enable (Berger) the insulating tube units to absorb a difference between thermal expansion coefficients of the crossover lead and the insulating tube apparatus and to thereby inhibit disconnection of the crossover lead (Col.1 lines 40-45).

Regarding claim 8 (Murakami et al.) further teaches wherein adjacent ones of the plurality of insulating tube units are separated by a predetermined space (Fig. 1 elements 4 <the examiner notes that the insulating tubes have a predetermined length which suggests that the crossover lead is not totally covered, which indicates a separation) (Berger) to enable the plurality of insulating tube units to expand or contract in to temperature changes response to absorb the difference between the thermal expansion coefficients of the crossover lead and the insulating tube apparatus and to thereby inhibit the disconnection of the crossover lead (Col. 1 lines 40-45 <see claim 1>).

Regarding claims 15 & 16 Dulin et al. in view of Murakami et al. and Berger discloses the disconnect protection structure of claims above except for the insulating tube units are arranged in series in an end-to-end relationship. It would have been obvious to one having ordinary skills in the art at the time the invention was made to use more than one insulating tube (in series in an end-to-end relationship. <it is obvious since the tubes are protecting a crossover lead which determines a line so all the tubes would be in that line with the required end-to-end relationship and in series>), since it has been held that mere duplication of the essential working parts of the device involves only routine skill in the art. St. Regis Paper Co. v. Bemis Co., 193 USPQ 8.

Claims 4 & 9-10 are rejected under 35 U.S.C. §103(a) as being unpatentable over Dulin et al. (US 6118201) in view of Murakami et al. (JP 05021234 A), Berger (US 5025201) and DeCorso et al. (US 3991560).

Regarding claim 4 Dulin et al. in view of Murakami et al. and Berger discloses the disconnect protection structure of claim 2.

Berger does not teach wherein the thermal expansion coefficient absorption means comprises adjacent overlapping ends of the plurality of insulating tube units.

DeCorso et al. teaches the connection of tubes with a thermal expansion coefficient by being overlapped (Fig. 2 elements 22, 28, 36).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Dulin et al. in view of Murakami et al. and Berger with the overlapping of tubes taught by DeCorso et al. because it permits axial movement to accommodate thermal expansion and contraction (DeCorso et al. <Col. 1 lines 57-64>).

Regarding claim 9 DeCorso et al. further discloses the adjacent ends of the plurality of insulating tube units overlap one another over a predetermined distance, the predetermined distance changing in response to shifting of the plurality of insulating tube units relative to one another due to temperature changes (Col. 1 lines 57-64).

Regarding claim 10 DeCorso et al. further discloses two tubes one over the other with different diameter one tube inside the other (Fig. 2 elements 22, 28, 36) by a defined distance to enable the tubes to shift relative to one another response to temperature changes (Col. 1 lines 57-64).

Claims 5-6 & 11-14 are rejected under 35 U.S.C. §103(a) as being unpatentable over Dulin et al. (US 6118201) in view of Murakami et al. (JP 05021234 A), Berger (US 5025201) and Sakurai et al. (US 5744104).

Regarding claim 5 Dulin et al. in view of Murakami et al. and Berger discloses the disconnect protection structure of claim 1.

Dulin et al. in view of Murakami et al. and Berger does not disclose wherein the thermal expansion coefficient absorption means comprises at least one cutout portion formed on the insulating tube apparatus.

Sakurai et al. teaches a tube with cutout to absorb expansion due to temperature (Fig. 34).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Dulin et al. in view of Murakami et al. and Berger with the tubes with cut outs taught by Sakurai et al. because this cut outs act like springs and deflects when force is exerted along the tube (Sakurai et al. <Col. 21 lines 7-17>), which enhances ability to withstand further thermal expansion effects.

Regarding claim 6 Sakurai et al. further discloses wherein the insulating tube apparatus mentioned above could be bent to define an elbow (Fig. 40), and the cutout portion (Fig. 34) could be located at the elbow.

Regarding claim 11 Dulin et al. in view of Murakami et al., Berger and Sakurai et al. discloses a disconnect protection structure for housing (Dulin et al.) a rotary transformer (Abstract & Fig. 1 element 20) type resolver crossover lead (Col. 3 lines 27-32 & Fig. 1 element 70), comprising: (Murakami et al.) a unitary insulating tube that

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covers a lead (Fig. 1 elements 4) and that one end of the insulated tube is secured to the lead (Fig. 5 element 25); and (Sakurai et al.) a disconnect stress absorbing cutout portion (Fig. 34) formed in the unitary insulating tube for absorbing a difference between thermal expansion coefficients of the crossover lead and the unitary insulating tube to thereby inhibit disconnection of the crossover lead (Berger)(Col.1 lines 40-45).

Regarding claim 12 Sakurai et al. further wherein ends of the unitary insulating tube are respectively secured to the lead (Fig. 5 element 25 <this is the case of having just one tube, then the extremes will be secured to the crossover lead>).

Regarding claim 13 Sakurai et al. further discloses wherein the unitary insulating tube is bent to define an elbow (Fig. 40), and the disconnect stress absorbing cutout portion is located at the elbow (Fig. 34).

Regarding claim 14 Sakurai et al. further discloses comprising a least one additional disconnect stress absorbing cutout portion formed on the unitary insulating tube (Fig. 34).

Response to Arguments

Applicant's arguments filed on 11/20/06 have been fully considered but with respect to the independent claims 1 & 7 they are not persuasive.

Applicant's arguments regarding to independent claim 11 and dependent claims 2-6, 8-10 & 12-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luis E. Román whose telephone number is (571) 272 – 5527. The examiner can normally be reached on Mon – Fri from 7:15 AM to 3:45 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272-2800 x 36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from Patent Application Information Retrieval (PAIR) system.

Status information for unpublished applications is available through private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LR/03/01/07

Luis E. Román
Patent Examiner
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